

# The Chemistry of Auschwitz/Birkenau

[John Wear](#)

Defenders of the Holocaust story have attempted to discredit scientific reports which disprove the existence of homicidal gas chambers at German camps during World War II. For example, Deborah Lipstadt's defense attorney, Richard Rampton, referred in court to *The Leuchter Report* as "...a piece of so-called research which is not worth the paper it is written on..." [\[1\]](#)

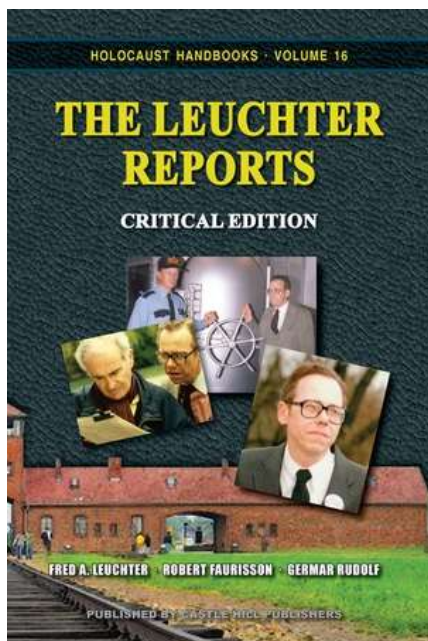
Dr. Richard Green states about Gernar Rudolf: [\[2\]](#)

*"Owing to the fact that he actually has some understanding of chemistry, many of his deceptions are more sophisticated than other Holocaust deniers. [...] Ultimately, he engages in the same deceptions and specious arguments as [Fred] Leuchter and [Walter] Lüftl, but the case he makes for those deceptions and arguments involves more difficult chemistry."*

This article will discuss attempts by chemists to discredit scientific reports which disprove the existence of homicidal gas chambers at Auschwitz/Birkenau during World War II.

## Historical Background

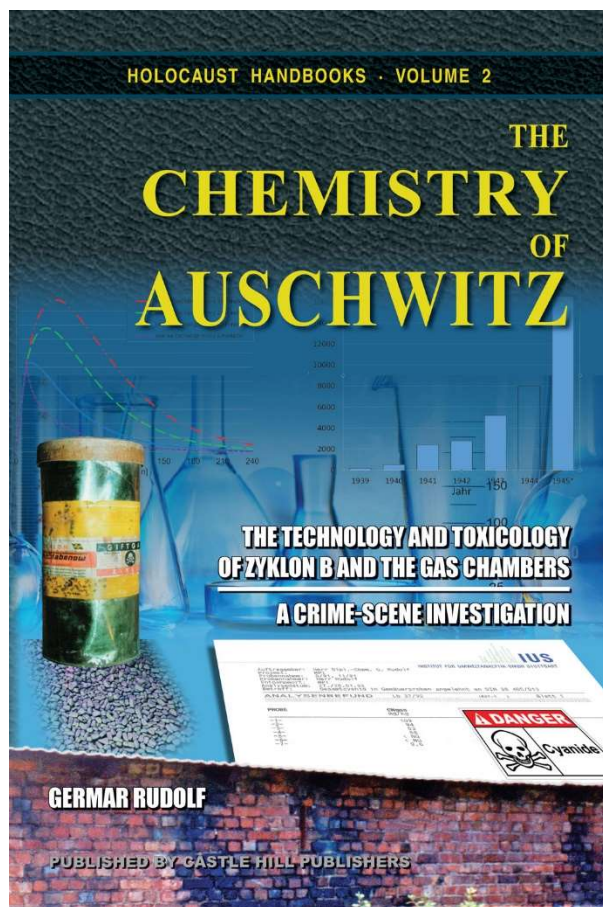
In 1988, the Canadian government put Ernst Zündel on trial a second time for the criminal offense of knowingly disseminating false news about "the Holocaust." As part of his defense in this trial, Zündel commissioned the U.S. gas-chamber expert Fred Leuchter to make a scientific examination of the alleged homicidal gas chambers at Auschwitz, Birkenau and Majdanek. The resulting *Leuchter Report* is the first scientific study of the alleged German homicidal gas chambers. [\[3\]](#)



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In addition to reporting that the alleged homicidal gas chambers at Auschwitz, Birkenau and Majdanek were structurally unsuitable for gassing, Leuchter researched the chemical properties of the Zyklon B fumigant. Leuchter found that Zyklon B is a highly toxic compound that releases deadly hydrogen-cyanide gas. The released hydrogen-cyanide gas clings to surfaces and reacts chemically with materials containing iron, forming ferrocyanide compounds that have a distinctive blue color called Prussian Blue. Since building materials normally contain a certain amount of rust (iron oxide, usually between one and four percent), repeated exposure to hydrogen-cyanide gas would result in Prussian Blue staining on the walls of the alleged gas chambers.[\[4\]](#)

Leuchter took forensic samples from the alleged gas chambers at the visited sites and a control sample from the delousing facility at Birkenau. The samples were analyzed by an independent laboratory in the United States. The laboratory found no significant ferrocyanide compound traces in the samples taken from the alleged homicidal gas chambers, but the sample from a wall of the Birkenau delousing facility had heavy concentrations of the ferrocyanide compounds. Leuchter concluded that this result would be impossible if the alleged homicidal gas chambers had been repeatedly exposed to hydrogen-cyanide gas.[\[5\]](#)



[Click to learn more about the current edition of Rudolf's research results, read it online or download it free of charge, or buy a hard copy.](#)

Germar Rudolf, a certified chemist, expanded on Leuchter's work by writing the *Rudolf Report* in the spring of 1992. *The Rudolf Report*, which has been updated and revised several times, focused on

engineering and chemical aspects of the alleged homicidal gas chambers at Auschwitz and Birkenau. Rudolf observed in his on-site examinations that all of the delousing facilities at Auschwitz, Birkenau, Stutthof and Majdanek have one thing in common: their walls are permeated with Prussian Blue. Not only the inner surfaces, but also the exteriors of the walls and the mortar between the bricks of the delousing facilities have Prussian Blue staining. Nothing of this sort can be observed in any of the alleged homicidal gas chambers at Auschwitz and Birkenau.

Rudolf also took samples from the alleged homicidal gas chambers and the delousing facilities at Auschwitz and Birkenau. Similar to Leuchter's samples, the alleged homicidal gas chambers exhibit only insignificant traces of ferrocyanide residue on the same order of magnitude as found in any other building. The samples from the delousing chambers, however, all showed very high ferrocyanide residues. Rudolf determined that, if mass execution gassings with hydrocyanic acid had taken place in the alleged homicidal gas chambers, the rooms in the alleged homicidal gas chambers would exhibit similar ferrocyanide residue as the delousing chambers. Therefore, Rudolf concluded that mass gassings with Zyklon B did not occur in the alleged homicidal gas chambers at Auschwitz and Birkenau.[\[6\]](#)

### **Kraków Institute of Forensic Research**

The Kraków Institute of Forensic Research published results in 1994 that attempted to refute the *Leuchter Report*. The team from this forensic institute led by Dr. Jan Markiewicz claims not to have understood how it was possible for Prussian Blue to have formed in walls as a result of their being exposed to hydrogen-cyanide gas. The researchers therefore excluded Prussian Blue and similar iron-cyanide compounds from their analyses, resulting in much lower cyanide traces for the delousing chambers. Their analysis made it practically impossible to distinguish between rooms massively exposed to hydrogen cyanide and those which were not: all would have a cyanide residue of close to zero. The Kraków researchers concluded from their analysis that since the gas chambers and delousing facilities all had the same amount of cyanide residues, humans were gassed in the gas chambers.

*Watch the video on The Chemistry of Auschwitz*

German Rudolf gave the Kraków researchers irrefutable proof that Prussian Blue can be formed in walls exposed to hydrogen-cyanide gas, citing a case document in expert literature.[\[7\]](#) The authors of the Kraków report refused to change their report and admit they made a mistake. Rudolf writes:[\[8\]](#)

*“The only ‘scientific’ attempt to refute Frederick A. Leuchter’s most intriguing thesis turns out to be one of the biggest scientific frauds of the 20th century. How desperate must they be—those who try to defend the established version of the Holocaust, i.e., the alleged systematic extermination of Jews in homicidal ‘gas chambers’, that they resort to such obviously fraudulent methods?”*

British science historian Dr. Nicholas Kollerstrom also refuted the Kraków Institute of Forensic Research report, as succinctly summarized by the retired professor of the philosophy of science Dr. James H. Fetzer:[\[9\]](#)

*“When the Auschwitz museum was confronted with the fact that the innocuous delousing chambers at Auschwitz have blue walls – due to being saturated with blue iron cyanide compounds – but the alleged homicidal gas chambers have not, they commissioned their own chemical research. Instead of testing wall samples for the chemicals that had caused the blue stains, the researchers they commissioned simply excluded those chemicals from their analysis by employing a procedure that could not detect*

*them. They justified this measure with the claim that they did not understand exactly how these compounds could form and that they might therefore be mere artifacts. Researchers who don't understand what they are investigating have no business becoming involved. In this case, however, it appears to be deliberate. They have deliberately ignored an obvious explanation--that Zyklon B was only used for delousing--which would have remedied their lack of comprehension. As a result of this failure to adhere to the principles of science, they produced a report of no scientific value, which they used to arrive at a predetermined conclusion."*

Dr. Arthur Robert Butz writes in regard to the Kraków Institute of Forensic Research report:[\[10\]](#)

*"The argument, to the extent that it was intelligible enough to be summarized at all, was that they did not understand how the iron-cyanide compounds got to be there, so they decided to ignore them in reaching their conclusions. I don't understand how the moon got there, so I will ignore all effects associated with it, such as tides. I hope I don't drown."*

#### **Dr. James Roth**

Dr. James Roth testified at the 1988 Ernst Zündel trial that he received samples from Fred Leuchter in his capacity as an Analytical Chemist at Alpha Analytical Laboratories. The purpose of the tests was to determine the total iron and cyanide content in the samples. Dr. Roth testified that the Prussian Blue produced by a reaction of the iron and hydrogen cyanide could penetrate deeply in porous materials such as brick and iron.[\[11\]](#)

Dr. Roth later changed his testimony in a documentary movie titled *Mr. Death* produced by Errol Morris. Dr. Roth states in this movie:[\[12\]](#)

*"Cyanide is a surface reaction. It's probably not going to penetrate more than 10 microns. Human hair is 100 microns in diameter. Crush this sample up, I have just diluted that sample 10,000; 100,000 times. If you're going to go looking for it, you're going to look on the surface only. There's no reason to go deep, because it's not going to be there."*

Dr. Nicholas Kollerstrom writes that Dr. Roth's statements in *Mr. Death* are wrong:[\[13\]](#)

*"The 1999 film about Leuchter features an interview with the chemist [Dr. James Roth] who had done the analysis of his wall-samples back in 1988. He had done this 'blind,' i.e. with no knowledge of where they had come from, which was correct scientific procedure. During the second Zündel trial in Toronto in 1988 he testified under oath concerning the method used and what Leuchter had sent him. He said back then that hydrogen cyanide can easily penetrate into brick and mortar. But then, when he was interviewed again by Morris for his documentary, he suddenly stated that the results were quite meaningless, because the cyanide could only have soaked a few microns into the brickwork. Wow, that was quite a whopper. Mortar and brickwork are highly porous to hydrogen cyanide, obviously so because the delousing chambers were more or less equally blue inside and out, it had soaked right through. But you can watch him on video explaining this, as if he were confusing brick and mortar with rock. The latter will only absorb cyanide to a few microns of its surface."*

Germer Rudolf writes in regard to Dr. Roth's statements in *Mr. Death*:[\[14\]](#)

*"It can be shown that Prof. Dr. James Roth is wrong for the following reasons:*

1. It is a fact that the walls of the disinfection chambers in Auschwitz, Birkenau, Stutthof, and Majdanek are saturated with cyanide compounds, and this not only superficially, but into the depth of the masonry, as I have demonstrated by taking samples from different depths of the wall. Compare in this regard my mortar and plaster Sample Pairs 9 & 11, 12 & 13, 19a & b. [...], which were each taken at the same spot but at different depths, as well as Sample 17, taken from below the overlying lime plaster (which is thus similar to 19b).

These values prove that hydrogen cyanide can rather easily reach deep layers of plaster and mortar. But even the other samples taken from the surface prove that Prof. Roth's allegation is wrong: Provided that most of the cyanide detectable today is present in the form of iron cyanide (Iron Blue and other cyanoferrates), as Prof. Roth assumes himself, his thesis would mean that 10% to 75% of the iron content of these samples are located in the upper 10 micrometers thin layer of the samples (0.010 mm), i.e., they are located in less than 1% of the entire sample mass. The rest of the samples, however, would have been massively deprived of iron. How this migration of a major portion of iron to a thin surface layer would have happened is inexplicable to me. Fact is that this simply could not happen.

2. Furthermore, expert literature is detailed about the following:

a. Hydrogen cyanide is an extremely mobile chemical compound with physical properties comparable to water. [...]

b. Water vapor can quite easily penetrate masonry material, and thus also hydrogen cyanide. [...]

c. Hydrogen cyanide can easily penetrate thick, porous layers like walls. [...]

3. In addition, it is generally known that cement and lime mortar are highly porous materials, comparable for instance to sponges. In such materials, there does not exist anything like a defined layer of 0.01 mm beyond which hydrogen cyanide could not diffuse, as there can also be no reason, why water could not penetrate a sponge deeper than a millimeter. Steam, for example, which behaves physically comparable to hydrogen cyanide, can very easily penetrate walls.

4. Finally, the massive discolorations of the outside of the walls of the disinfection chambers in Birkenau and Stutthof, as shown in this expert report, are clearly visible and conclusive evidence for the fact of how easily hydrogen cyanide and its soluble derivatives can and do penetrate such walls.

As a professor of analytical chemistry, Prof. Roth must know this, so one can only wonder why he spreads such outrageous nonsense. That Prof. Roth is indeed a competent chemist can be seen from what he said during his testimony under oath as an expert witness during the above mentioned Zündel trial.:

'In porous materials such as brick or mortar, the Prussian blue [recte: hydrogen cyanide] could go fairly deep as long as the surface stayed open, but as the Prussian blue formed, it was possible that it would seal the porous material and stop the penetration.'

[...] It is also revealing that Prof. Roth mentioned during this interview that, if he had known where Leuchter's samples originated from, his analytical results would have been different. Does that mean that Prof. Roth manipulates his result according to whether or not he likes the origin of certain samples? Such an attitude is exactly the reason why one should never tell an 'independent' laboratory about the origin of the samples to be analyzed, simply because 'independence' is a very flexible term when it comes

to controversial topics. What Prof. Dr. Roth has demonstrated here is only his lack of professional honesty.”

### **Dr. Richard Green**

Dr. Richard Green, who has a Ph.D. in chemistry from Stanford University, agrees with Germar Rudolf that the Prussian Blue found in the delousing chambers is the result of gassings with hydrogen cyanide. However, Dr. Green offers a possible alternative explanation for why the outside walls of the delousing chambers have blue staining. Green writes:[\[15\]](#)

*“[...] the discoloration on the outside of walls [of the delousing chambers], ought to make one consider what possible processes could have taken place outside of the delousing chambers. For example, is it possible that materials that had been soaked with aqueous solutions of HCN were leaned against the outside of the buildings? Not enough is known, but it is premature to conclude that the staining on the outside of buildings owes its origins to processes that took place within those buildings.”*

Dr. Green’s speculation is absurd. Why would the Germans lean materials that had been soaked with aqueous solutions of HCN against the outside walls of the delousing chambers? Dr. Green is desperate to find an alternative reason for the heavy blue staining on the outside walls of the delousing chambers.[\[16\]](#)

Germar Rudolf writes in regard to Dr. Green’s speculation:[\[17\]](#)

*“One major rule of science is that it is impermissible to immunize a theory against refutation, here in particular by inventing untenable auxiliary hypotheses to shore up an otherwise shaky thesis. [...] This is exactly what Dr. Green is doing: coming up with a ludicrous attempt at explaining a fact which does not fit into his theory. Yet instead of fixing his theory, he tries to bend reality.”*

Dr. Green also challenges the possibility of formation of any noticeable quantities of Prussian Blue in the alleged homicidal gas chambers. Dr. Green writes:[\[18\]](#)

*“The difference in total cyanides (Prussian blue + non-Prussian blue) owes to the fact that Prussian blue formed efficiently in the case of the delousing chambers but not in the homicidal gas chambers, and Prussian blue once formed is likely to remain.”*

Dr. Green is not able to provide any convincing evidence why Prussian Blue would not form efficiently in the homicidal gas chambers. For example, Dr. Green states that masonry in the alleged homicidal gas chambers has a neutral pH value which does not allow for the formation of cyanide salts. Germar Rudolf writes:[\[19\]](#)

*“But if that were true, how come huge amounts of cyanides did accumulate in the walls of the disinfection chambers?”*

Rudolf has documented with expert literature on the chemistry of building materials that the cement mortars and concretes used in the alleged homicidal gas chambers are noticeably alkaline for many weeks, months, or even years. These walls would have been very much inclined to accumulate cyanide salts and to form Prussian Blue, even more so than the lime plaster of the disinfection chambers.[\[20\]](#)

### **Conclusion**

The alleged homicidal gas chambers at Auschwitz/Birkenau could not have been used to exterminate hundreds of thousands of people as described in pro-Holocaust literature for numerous reasons:[21]

1. they did not have escape-proof doors and windows;
2. they did not have panic-proof fixtures;
3. they did not have technically gastight doors and shutters;
4. they had no provision to quickly release and distribute the poison gas; and
5. they had no effective device to ventilate or otherwise render ineffective the poison gas after the execution.

By contrast, Germany built highly sophisticated and expensive disinfestation facilities at Auschwitz/Birkenau to kill lice and save inmate lives. By one estimate, the SS at Auschwitz spent almost \$1 billion in today's values to bring the typhus epidemics raging there under control.[22] An enormous amount of information exists concerning these German delousing facilities[23], but no similar information exists regarding the alleged homicidal gas chambers at Auschwitz/Birkenau.[24]

The roof of the semi-underground Morgue #1 of Crematorium II at Birkenau, which is said to have been the building's homicidal gas chamber, remains intact to some degree today. Contrary to eyewitness testimony, that roof has no Zyklon-B-introduction holes. This has been acknowledged by pro-Holocaust researcher Robert Jan van Pelt. Since it is impossible to close holes measuring 70 x 70 cm from a concrete roof without leaving clearly visible traces, it is certain that no Zyklon-B-introduction holes ever existed at Crematorium II. Consequently, Zyklon B could not have been introduced through the roof at this morgue as alleged by pro-Holocaust supporters.[25]

As documented in this article, chemists adhering to the orthodox Holocaust narrative have failed to explain why the walls of the delousing facilities at Auschwitz/ Birkenau are permeated with Prussian Blue, while nothing of this sort can be observed in any of the alleged homicidal gas chambers. The only reasonable explanation is that Zyklon B was never used in the alleged homicidal gas chambers at Auschwitz/Birkenau. Nicholas Kollerstrom writes:[26]

*"[...] for any alleged human gas chamber found in a German World War II labour camp let us merely measure cyanide in the walls: if it's not there, it didn't happen."*

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## Notes

- [1] Van Pelt, Robert Jan, *The Case for Auschwitz: Evidence from the Irving Trial*, Bloomington, IN: Indiana University Press, 2002, pp. 137, 435.
- [2] Richard J. Green, "The Chemistry of Auschwitz," 10 May 1998, <http://phdn.org/archives/holocaust-history.org/auschwitz/chemistry/>
- [3] Rudolf, Gernar, "[Some Technical and Chemical Considerations about the 'Gas Chambers' of Auschwitz and Birkenau](#)," in Gauss, Ernst (ed.), *Dissecting the Holocaust: The Growing Critique of Truth and Memory*, Capshaw, AL: Thesis and

Dissertations Press, 2000, p. 337. See the currently available edition of Leuchter's report: Fred A. Leuchter, Robert Faurisson, Gernar Rudolf, [\*The Leuchter Reports: Critical Edition\*](#), 4th ed., Castle Hill Publishers, Uckfield 2015.

- [4] Rudolf, Gernar, "[\*A Brief History of Forensic Examinations of Auschwitz\*](#)," *The Journal of Historical Review*, Vol. 20, No. 2, March/April 2001, p. 7.
- [5] Leuchter, Fred A., "[\*The Leuchter Report: The How and the Why\*](#)," *The Journal of Historical Review*, Vol. 9, No. 2, Summer 1989, pp. 138-139.
- [6] Rudolf, Gernar, "Some Technical..." *op. cit.* (note 3), pp. 363-371. The first English edition of Rudolf's report appeared in 2003: *The Rudolf Report*, Theses & Dissertations Press, Chicago, IL, 2003.
- [7] Rudolf, Gernar, "A Brief History..." *op. cit.* (note 4), p. 9.
- [8] Rudolf, Gernar, "Some Technical..." *op. cit.* (note 3), p. 369.
- [9] Preface to: Kollerstrom, Nicholas, [\*Breaking the Spell: The Holocaust, Myth and Reality\*](#), Uckfeld, Great Britain: Castle Hill Publishers, 2015, pp. 12-13.
- [10] Butz, Arthur R., "[\*Historical Past vs. Political Present\*](#)," *The Journal of Historical Review*, Vol. 19, No. 6, Nov./Dec. 2000, p. 15.
- [11] Kulaszka, Barbara, (ed.), [\*Did Six Million Really Die: Report of Evidence in the Canadian "False News" Trial of Ernst Zündel\*](#), Toronto: Samisdat Publishers Ltd., 1992, pp. 362-363.
- [12] [https://en.wikiquote.org/wiki/Mr.\\_Death](https://en.wikiquote.org/wiki/Mr._Death); Richard J. Green, "Report of Richard J. Green," introduced in evidence during the libel case before the Queen's Bench Division, Royal Courts of Justice, Strand, London, David John Cawdell Irving vs. (1) Penguin Books Limited, (2) Deborah E. Lipstadt, ref. 1996 I. No. 1113, 2001, p. 16; <http://www.phdn.org/archives/holocaust-history.org/irving-david/rudolf/affweb.pdf>.
- [13] Kollerstrom, Nicholas, *Breaking the Spell*, *op. cit.* (note 9), p. 66.
- [14] Rudolf, Gernar, [\*The Chemistry of Auschwitz: The Technology and Toxicology of Zyklon B and the Gas Chambers—A Crime-Scene Investigation\*](#), Uckfield, Great Britain: Castle Hill Publishers, 2017, pp. 342-345.
- [15] Richard J. Green, "Report of Richard J. Green," *op. cit.* (note 12), pp. 18, 36, 41.
- [16] Rudolf, Gernar, *The Chemistry...*, *op. cit.* (note 14), pp. 347-349.
- [17] *Ibid.*, p. 348.



- [18] Richard J. Green, "Report of Richard J. Green," *op. cit.* (note 12), p. 51.
- [19] Rudolf, Germar, *The Chemistry...*, *op. cit.* (note 14), p. 345.
- [20] *Ibid.*, pp. 345-346.
- [21] *Ibid.*, pp. 174-175.
- [22] *Ibid.*, pp. 175, 293.
- [23] Berg, Friedrich P., "Zyklon B and the German Delousing Chambers," *Journal of Historical Review*, Vol. 7, No. 1, Spring 1986, pp. 73-94; [http://www.ihr.org/jhr/v07/v07p-73\\_Berg.html](http://www.ihr.org/jhr/v07/v07p-73_Berg.html).
- [24] Rudolf, Germar, *The Chemistry...*, *op. cit.* (note 14), p. 114.
- [25] *Ibid.*, pp. 143-147.
- [26] Kollerstrom, Nicholas, *Breaking the Spell*, *op. cit.* (note 9), p. 70.

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